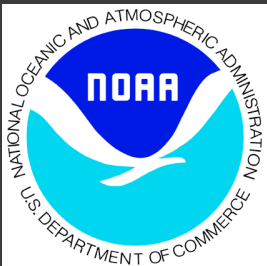


CLIMATE CHANGE ADAPTATION

Ask the Climate Question

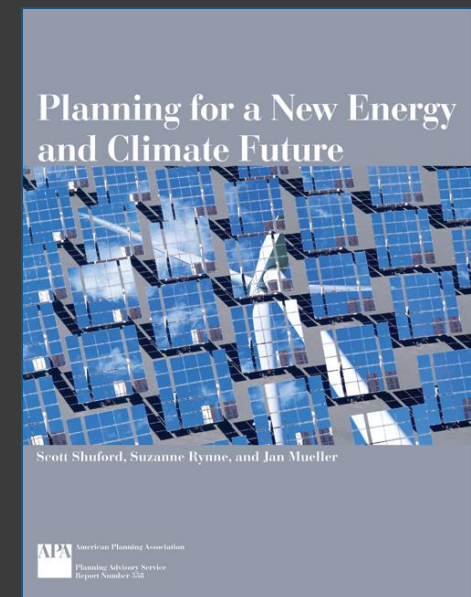
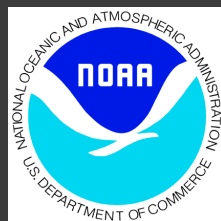
Ideas and Issues for Planners, Engineers and
Policy Makers

Scott Shuford, AICP
Onslow County



PLANNING FOR A NEW ENERGY AND CLIMATE FUTURE

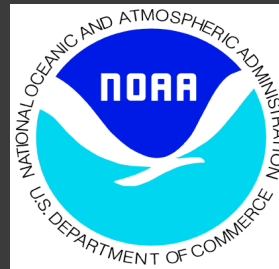
- PAS Report – Collaborative effort
- Funding support from Surdna & George Gund Foundations, ENRE Division & NOAA
- Help planners incorporate energy and climate change considerations into their work
- Assist communities and regions to
 - Reduce energy use & GHG emissions
 - Adapt to a changing climate
 - Transition to renewable energy



PLANNING FOR A NEW ENERGY AND CLIMATE FUTURE

More information about the report and about energy and climate change can be found at:

www.planning.org/research/energy/



THANKS



AM I AT THE RIGHT CONFERENCE?

Mitigation

- Copenhagen
- Cap-and-Trade
- VMT
- CAFE standards
- 83% Below 2000 Levels
- Sequestration

Adaptation

- Sea-Level Rise
- Strong Storms
- Wildfires
- Flooding
- Drought
- Heat Waves

AM I AT THE RIGHT CONFERENCE?

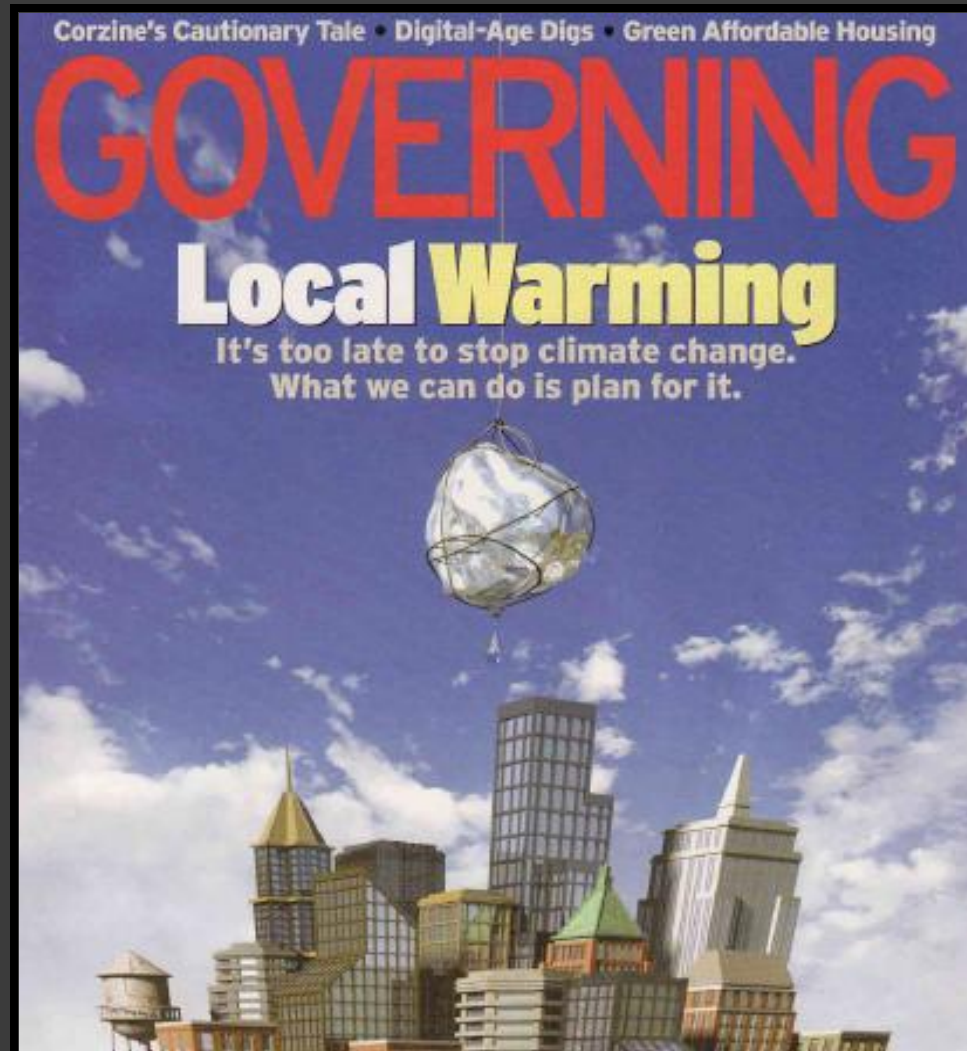
~~Mitigation~~

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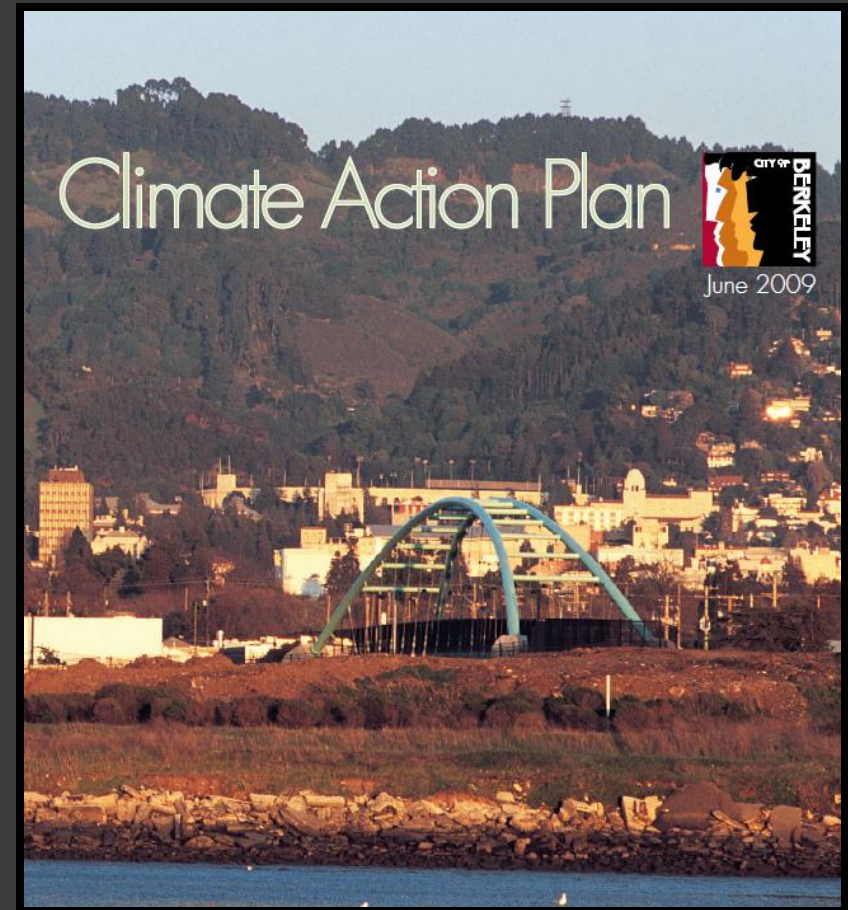
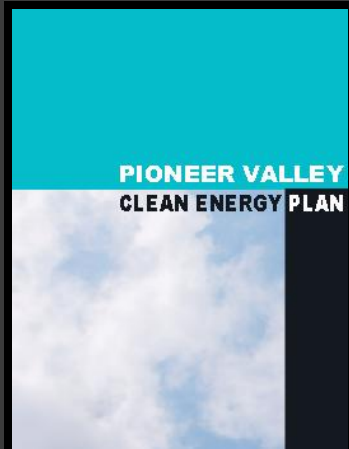
ADAPTATION



STRATEGIC POINTS OF INTERVENTION

- Long-Range Community Visioning and Goal Setting
- Plan Making
- Standards, Policies, and Incentives
- Development Work
- Public Investment
- Education and Outreach

PLAN-MAKING



www.planning.org/research/energy/

DEVELOPMENT WORK



<http://www.greensburggreentown.org/>



www.planning.org/research/energy/

DEVELOPMENT PATTERNS

- Migration
- Concentrating development in low-risk areas

DEVELOPMENT PATTERNS

Migration



Photo by Dave Saville, FEMA News Photo

DEVELOPMENT PATTERNS

Migration

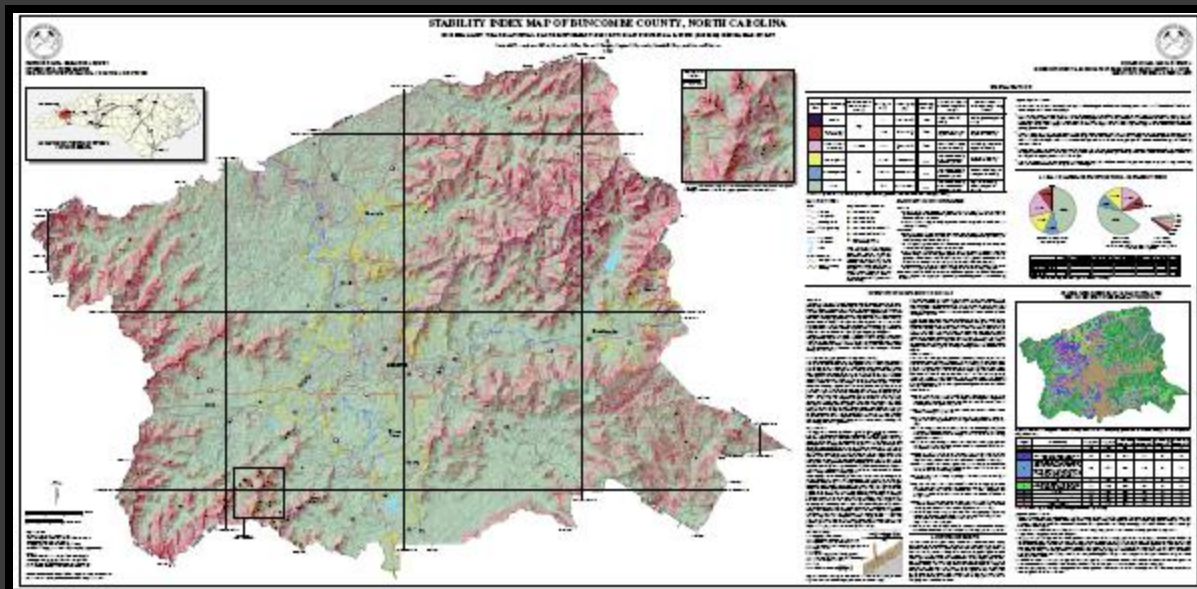


DEVELOPMENT PATTERNS

Concentrating
development in
low-risk areas



NOAA image



NCGS image

INFRASTRUCTURE

- Infrastructure design
- Maintenance

INFRASTRUCTURE

Infrastructure Design

The Confederation Bridge



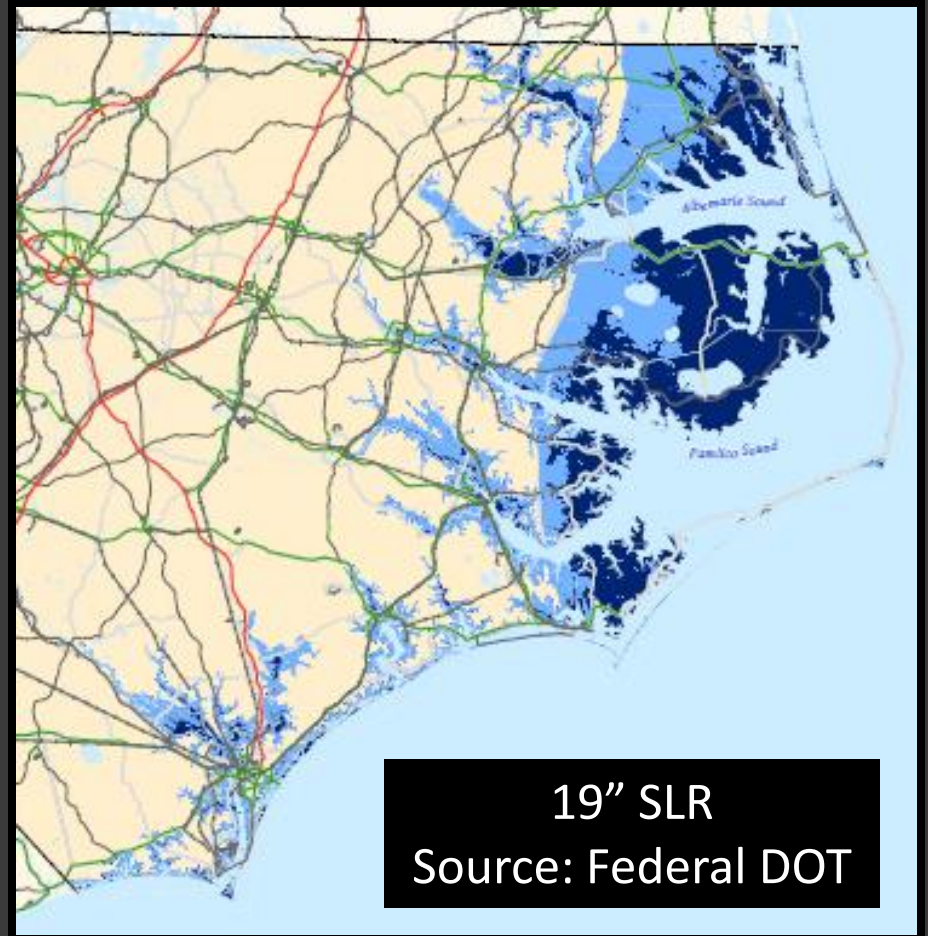
www.confederationbridge.com/en/

INFRASTRUCTURE

Infrastructure Maintenance

Coastal Resources Commission

- 1.25' to 4.5' SLR
- 40" best estimate



ECONOMIC DEVELOPMENT

- Agriculture and forestry
- Insurance

ECONOMIC DEVELOPMENT

Agriculture

- Crop varieties
- Erosion
- Pests
- Competition for water
- Wildfires
- Food preferences



NCDCR image

ECONOMIC DEVELOPMENT

Insurance

- Historical data used to assign risk and determine rates will become increasingly less useful
- Regulators may hold insurance prices below actuarial levels to avoid damage to markets
- Liability concerns

NOAA file photo



SITES AND BUILDINGS

- Landscaping and “green infrastructure”
- Building design

SITES AND BUILDINGS

Green Infrastructure



NCSU image

SITES AND BUILDINGS

Building Design



NATURAL RESOURCES

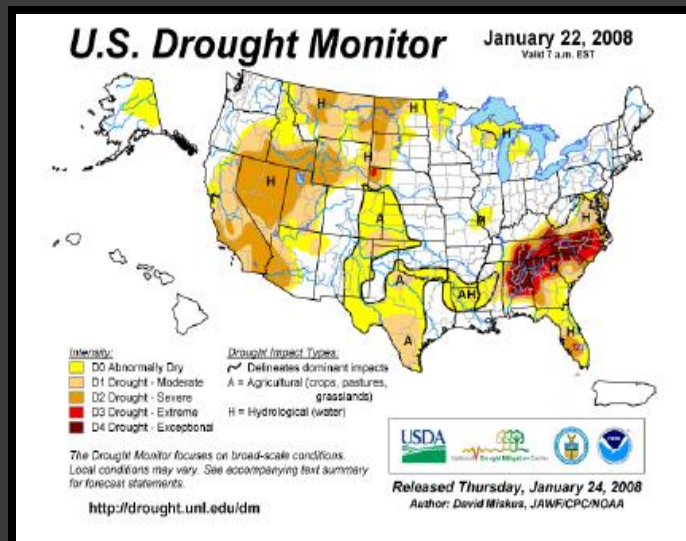
- Water management
- Sea-level rise

NATURAL RESOURCES

Water management



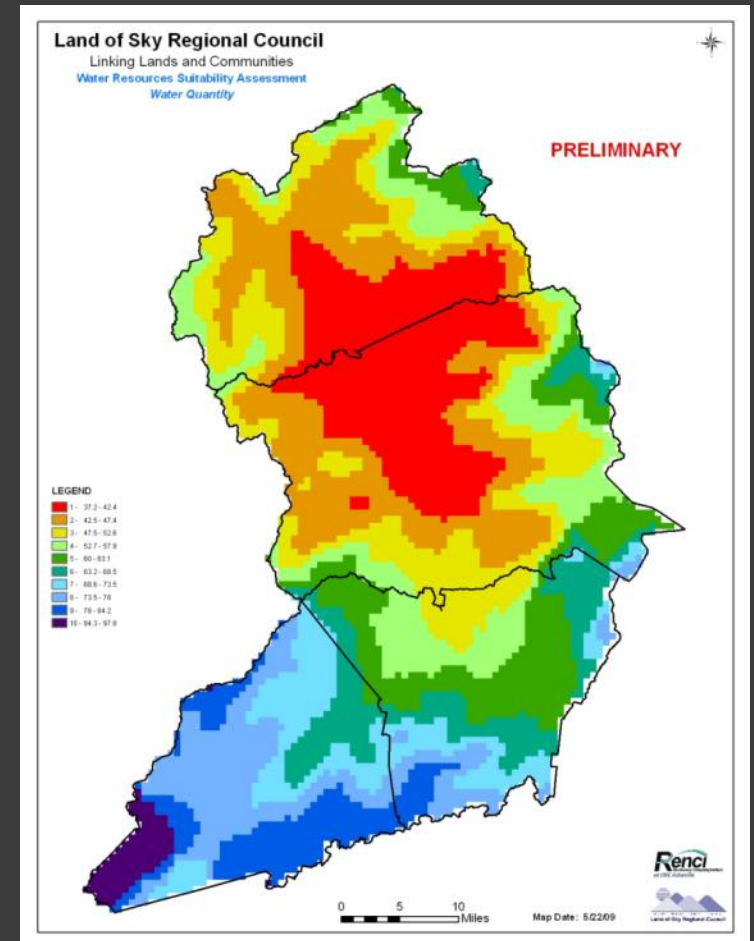
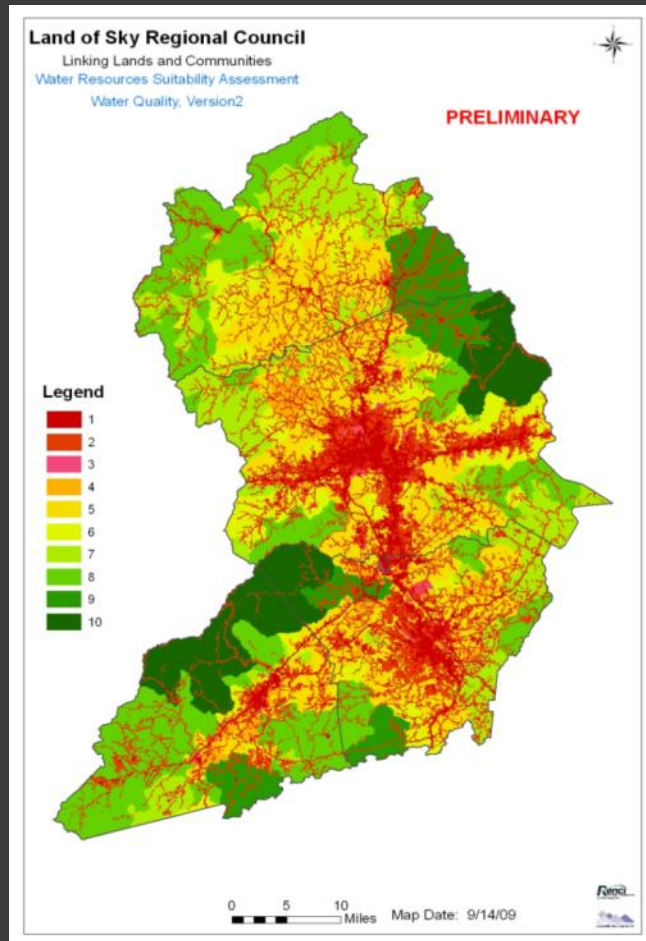
National Institute of Environmental Health Sciences image



NASA image

NATURAL RESOURCES

Water management



RENCI images

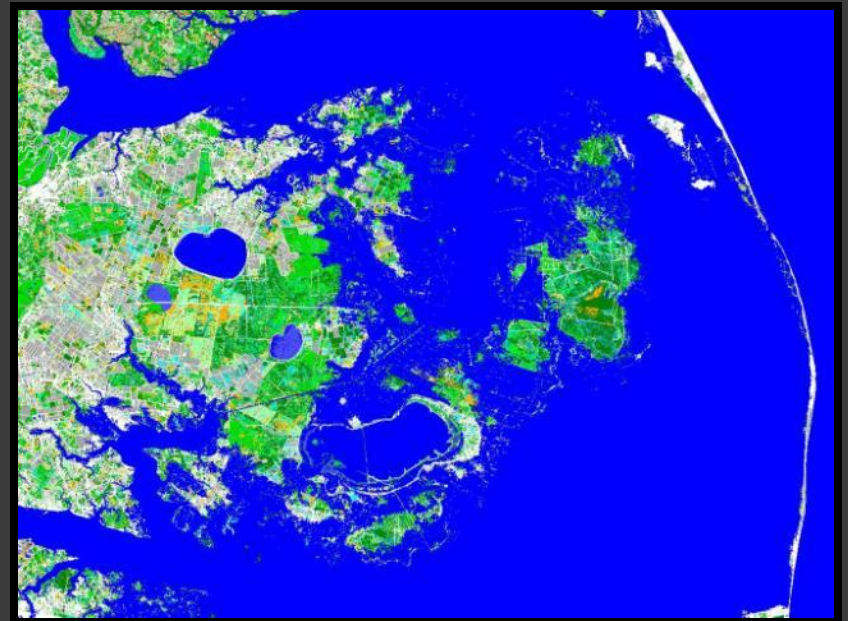
NATURAL RESOURCES

Sea-level rise

Alligator River – Current Sea Level



Alligator River – 2 feet of Sea Level Rise



HOW TO MANAGE ADAPTATION?

Decision Makers Face Many Challenges

- Diversity of stakeholder **values**
- Decisions are based on a **combination of factors** and not a single driver
- Information is often not at the proper **scale**
- Who is a **trusted source** of information?
- **Uncertainty** with data
- Who is **empowered** to make the decisions?

HOW TO MANAGE ADAPTATION?

Addressing the Challenges Will Require:

- Predict the range of outcomes resulting from different actions - **scenarios**
- Identify “**win-win**” and “**no regrets**” solutions
- Use data **scaled** to the level of decision making
- Tie data to **community values** through **decision support tools**
- Communicate effectively across **all sectors** – “interdisciplinarity”

HOW TO MANAGE ADAPTATION?



HOW TO MANAGE ADAPTATION?



HOW TO MANAGE ADAPTATION?



HOW TO MANAGE ADAPTATION?



HOW TO MANAGE ADAPTATION?



HOW TO MANAGE ADAPTATION?



HOW TO MANAGE ADAPTATION?



Image courtesy of Mark Combs